

MM	MM	SSSSSSSSSS	CCCCCCCCCCCC	PPPPPPPPPPPPP
MM	MM	SSSSSSSSSS	CCCCCCCCCCCC	PPPPPPPPPPPPP
MM	MM	SSSSSSSSSS	CCCCCCCCCCCC	PPPPPPPPPPPPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSSSSSSS	CCC	PPPPPPPPPPPPP
MM	MM	SSSSSSSS	CCC	PPPPPPPPPPPPP
MM	MM	SSSSSSSS	CCC	PPPPPPPPPPPPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSS	CCC	PPP
MM	MM	SSSSSSSSSS	CCCCCCCCCCCC	PPP
MM	MM	SSSSSSSSSS	CCCCCCCCCCCC	PPP
MM	MM	SSSSSSSSSS	CCCCCCCCCCCC	PPP

FILEID**MSCPDEF

ADD
VO4

MM	MM	SSSSSSSS	CCCCCCCC	PPPPPPPP	DDDDDDDD	EEEEEEEEE	FFFFFFFFF
MM	MM	SSSSSSSS	CCCCCCCC	PPPPPPPP	DDDDDDDD	EEEEEEEEE	FFFFFFFFF
MMMM	MMMM	SS	CC	PP	PP	EE	FF
MMMM	MMMM	SS	CC	PP	PP	EE	FF
MM	MM	SS	CC	PP	PP	EE	FF
MM	MM	SS	CC	PP	PP	EE	FF
MM	MM	SSSSSS	CC	PPPPPPPP	DD	EEEEEEEEE	FFFFFFFFF
MM	MM	SSSSSS	CC	PPPPPPPP	DD	EEEEEEEEE	FFFFFFFFF
MM	MM	SSSSSS	CC	PP	DD	EE	FF
MM	MM	SS	CC	PP	DD	EE	FF
MM	MM	SS	CC	PP	DD	EE	FF
MM	MM	SS	CC	PP	DD	EE	FF
MM	MM	SSSSSSSS	CCCCCCCC	PP	DDDDDDDD	EEEEEEEEE	FF
MM	MM	SSSSSSSS	CCCCCCCC	PP	DDDDDDDD	EEEEEEEEE	FF

....
....

MM	MM	AAAAAA	RRRRRRR	
MM	MM	AAAAAA	RRRRRRR	
MMMM	MMMM	AA	RR	RR
MMMM	MMMM	AA	RR	RR
MM	MM	AA	RR	RR
MM	MM	AA	RR	RR
MM	MM	AA	RRRRRRRR	
MM	MM	AA	RRRRRRRR	
MM	MM	AAAAAAA	RR	RR
MM	MM	AAAAAAA	RR	RR
MM	MM	AA	RR	RR
MM	MM	AA	RR	RR
MM	MM	AA	RR	RR
MM	MM	AA	RR	RR

.TITLE MSCP MACROS
.IDENT 'V04=000'

;*****
;
;* COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
;* DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.
;* ALL RIGHTS RESERVED.
;
;* THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED
;* ONLY IN ACCORDANCE WITH THE TERMS OF SUCH LICENSE AND WITH THE
;* INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR ANY OTHER
;* COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY
;* OTHER PERSON. NO TITLE TO AND OWNERSHIP OF THE SOFTWARE IS HEREBY
;* TRANSFERRED.
;
;* THE INFORMATION IN THIS SOFTWARE IS SUBJECT TO CHANGE WITHOUT NOTICE
;* AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT
;* CORPORATION.
;
;* DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS
;* SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
;
;*****
;
;;++

FACILITY:

MSCP (Mass Storage Control Protocol) Emulator

ABSTRACT:

AUTHOR: Kerbey T. Altmann, May 1983

MODIFIED BY:

V03-003 DWT0237 David W. Thiel 21-Aug-1984
Add reference count field to HQB. Add queue linkage
to \$HQBDEF. Add HQB queue header to \$MSUDEF. Add
MSUSW MAX_PKT to \$MSUDEF as synonym (and replacement
for) MSUSQ_MIN_PKT. Put some extra space in each
structure. Add HQBSQ_PENDING to hold CDRPs pending
MAP deallocation.

V03-002 KTA3104 Kerbey T. Altmann 28-Feb-1984
More new fields for shadowing.

V03-001 KTA3081 Kerbey T. Altmann 15-Sep-1983
Add new fields for shadowing and controller timeout.

--
;
; Host que block

:

```

.MACRO $HQBDEF,$GBL
$DEFINI HQB,$GBL

$DEF HQBSL_FLINK .BLKL      ; Linkage to tie HQB's to MSU$Q_HQBLIST
$DEF HQBSL_BLINK .BLKL
$DEF HQBSW_SIZE .BLKW
$DEF HQBSB_TYPE .BLKB
$DEF HQBSB_PORT .BLKB
.BLKL
$DEF HQBSL_UNIT_ONLN .BLKL   ; Bit map of units host has online
$DEF HQBSL_CDT .BLKL        ; Pointer to CDT for connection
$DEF HQBSW_CNT_FLGS .BLKW
$DEF HQBSW_HST_TMO .BLKW    ; Host time out period
$DEF HQBSW_USE_FRAC .BLKW   ; Fraction of resources for this host
$DEF HQBSB_VEC .BLKB
$DEF HQBSB_FLAG .BLKB
SEQU HQBS$-TIME 8           ; Time ONLINE command issued
$DEF HQBSQ_TIME .BLKQ
$DEF HQBSW_NUM_QUE .BLKW
$DEF HQBSW_MAX_QUE .BLKW
$DEF HQBSW_REFC .BLKW       ; Count of outstanding packets
$DEF HQBSQ_PENDING .BLKQ 1   ; CDRP's pending UNMAP after disconnect
$DEF HQBS_CLEN .BLKL 4       ; Spare
$DEF HQBSK_CLEN

$DEFEND HQB,$GBL,DEF
.ENDM $HQBDEF

```

:: Unit que block

:

```

.MACRO $UQBDEF,$GBL
$DEFINI UQB,$GBL

$DEF UQBSL_SHDW_FL .BLKL
$DEF UQBSL_SHDW_BL .BLKL
$DEF UQBSW_SIZE .BLKW
$DEF UQBSB_TYPE .BLKB
.BLKB
$DEF UQBSB_HOST_CNT .BLKB 1 ; Number of hosts having unit online
$DEF UQBSB_CMD_PEND .BLKB
$DEF UQBSW_STATUS .BLKW
$DEF UQBSW_MULT_UNT .BLKW   ; Status of the unit
$DEF UQBSW_UNT_FLGS .BLKW   ; Special MSCP kludge
.BLKB
SEQU UQBSS_UNIT_ID 8        ; Unit flags
$DEF UQBSQ_UNIT_ID .BLKQ 1   ; Unit id
$DEF UQBSL_MEDIA_ID .BLKL   ; Media type id

```

```

$DEF UQBSW_SHDW_UNT .BLKW ; Shadow unit
$DEF UQBSW_SHDW_STS .BLKW
$DEF UQBSW_UNIT .BLKW
$DEF UQBSB_SLOT .BLKB
$DEF UQBSB_FLAGS .BLKB 1
$DEF UQB$L_VOL_SER .BLKL : Volume serial
$DEF UQB$L_UCB .BLKL : Pointer to unit's UCB
$DEF UQB$L_HOST_ONLN .BLKL : Hosts online
$SEQU UQBSS_NAME 16
$DEF UQB$T_NAME .BLKB 16
$DEF UQB$L_MAXBLOCK .BLKL : Maximum LBN size
$DEF UQB$L_START_LBN .BLKL : Starting LBN if logical disk
$DEF UQBSW_NUM_QOE .BLKW
$DEF UQBSW_MAX_QUE .BLKW
$DEF UQBSW_NUM_OPS .BLKW
$DEF UQBSW_MAX_OPS .BLKW
$DEF UQB$L_FENCEL .BLKL
$DEF UQB$L_FENCEH .BLKL
$DEF UQB$L_CDRP_FL .BLKL
$DEF UQB$L_CDRP_BL .BLKL
$DEF UQB$Q_BLOCK .BLKQ
$DEF UQB$Q_SHQ .BLKQ
$DEF UQB$L_SHDW_LOW .BLKL
$DEF UQB$L_SHDW_MST .BLKL
$DEF UQBSW_NUM_BLK .BLKW
$DEF UQBSW_MAX_BLK .BLKW
$DEF UQB$Q_UNITQ .BLKQ
$DEF UQB$L_CPY_CDRP .BLKL
.BLKL 4

```

```

$DEF UQB$C_LEN
$DEF UQB$K_LEN

$SEQU UQB$V_CIP 0
$SEQU UQB$M_CIP 1
$SEQU UQB$V_BLOCKED 1
$SEQU UQB$M_BLOCKED 2
$SEQU UQB$V_2PASS 2
$SEQU UQB$M_2PASS 4
$SEQU UQB$V_CMDPEND 3
$SEQU UQB$M_CMDPEND 8
$SEQU UQB$V_SEQ 4
$SEQU UQB$M_SEQ 16
$SEQU UQB$V_RIP 5
$SEQU UQB$M_RIP 32

```

```

$DEFEND UQB,$GBL,DEF
.ENDM SUQBDEF

```

:: Communication area

```
.MACRO SMSUDEF,$GBL
```

\$DEFINI MSU,\$GBL

SEQU	MSUSV_START	31	: State flag
SEQU	MSUSK_UNIT_SIZ	4	: LOG2 of MAX UNIT
SEQU	MSUSK_MAX_UNIT	16	: Maximum number of units
SEQU	MSUSK_HOST_SIZ	4	: LOG2 of MAX HOST
SEQU	MSI'dK_MAX_HOST	16	: Maximum number of simultaneous hosts
SEQU	MSJSK_MAX_OPCODE	64	: Maximum MSCP opcode
SEQU	MSUSK_AC_STRT	1	: START ACTION
SEQU	MSUSK_AC_STOP	2	: STOP ACTION
SEQU	MSUSK_AC_ADD	3	: ADD ACTION
SEQU	MSUSK_AC_REM	4	: REMOVE ACTION
SEQU	MSUSK_AC_DISC	5	: DISCONNECT ACTION
SEQU	MSCPSR_MIN_SIZE	12	: Minimum MSCP packet size
SDEF	MSUSL_D1	.BLKL	
SDEF	MSUSL_D2	.BLKL	
SDEF	MSUSW_SIZE	.BLKW	
SDEF	MSUSB_TYPE	.BLKB	
SDEF	MSUSB_SUBTYPE	.BLKB	
SDEF	MSUSL_P1	.BLKL	
SDEF	MSUSL_P2	.BLKL	
SDEF	MSUST_NAME	.BLKB 16	
SDEF	MSUSB_VEC	.BLKB 28	
SDEF	MSUSL_STATE	.BLKL	
SDEF	MSUSW_PACKET	.BLKW	: Number of credits and maximum packets per host
SDEF	MSUSW_INI_PKT	.BLKW	: Number of allocated packets
SDEF	MSUSW_NUM_PKT	.BLKW	: Number of free packets
SDEF	MSUSW_MIN_PKT	.BLKW	: Obsolete name for next field
SDEF	MSUSW_MAX_PKT	.BLKW	: Maximum number of free packets
SDEF	MSUSW_INI_HOST	.BLKW	
SDEF	MSUSW_NUM_HOST	.BLKW	
SDEF	MSUSL_BUFF_HEAD	.BLKL	: Head of the buffer pool
SDEF	MSUSL_MAX_BUF	.BLKL	
SDEF	MSUSL_SMALL	.BLKL	
SDEF	MSUSL_FRACTION	.BLKL	
SDEF	MSUSW_NUM_QUE	.BLKW	
SDEF	MSUSW_MAX_QUE	.BLKW	
SDEF	MSUSL_CDSV_SIZE	.BLKL	
SDEF	MSUSL_CDRP_SAVE	.BLKL	
SDEF	MSUSQ_QUEUE	.BLKL	: Start of queues
SDEF	MSUSL_CDRP_LIST	.BLKL	
SDEF	MSUSL_MEM_WAIT	.BLKL 1	
SDEF	MSUSL_UQB_LIST	.BLKL 1	
SEQU	MSUSC_NUMQUE	3	: Number of queues
SDEF	MSUSL_HOST_DSBL	.BLKL 1	
SDEF	MSUSL_UNIT_VEC	.BLKL	MSUSK_MAX_UNIT
SDEF	MSUSL_HOST_VEC	.BLKL	MSUSK_MAX_UNIT
SDEF	MSUSL_HOST_VEC	.BLKL	MSUSK_MAX_HOST
SDEF	MSUSQ_CTRL_ID	.BLKO	MSUSK_MAX_HOST

\$DEF MSU\$Q_CTRL_INFO .BLKQ
\$DEF MSU\$B_CTRL_DAT .BLKQ 2
\$DEF MSU\$L_OPCOUNT .BLKL : Start of the statistics area
\$DEF MSU\$L_ABORT .BLKL
\$DEF MSU\$L_SETCMD .BLKL
\$DEF MSU\$L_GETUNIT .BLKL
\$DEF MSU\$L_SETCTRL .BLKL
\$DEF MSU\$L_AVAIL .BLKL 3
\$DEF MSU\$L_ONLINE .BLKL
\$DEF MSU\$L_SETUNIT .BLKL
\$DEF MSU\$L_READ .BLKL 22
\$DEF MSU\$L_WRITE .BLKL
\$DEF MSU\$L_BLKCOUNT .BLKL 29 : Count of transfers in range 0,1,2,...127,128 and above blocks
\$DEF MSU\$Q_HQBLIST .BLKQ 129 : List of allocated HQB's
\$DEF MSU\$C_LENGTH .BLKL 4 : Free space
\$DEF MSU\$K_LENGTH

\$DEFEND MSU,\$GBL,DEF
.ENDM SMSUDEF

0249 AH-BT13A-SE
VAX/VMS V4.0

DIGITAL EQUIPMENT CORPORATION
CONFIDENTIAL AND PROPRIETARY

